

Analysis of Certain
Central Maine Power Company's
Customer Accounts

Testimony on Analysis of Customer Accounts

Docket No: 2019-00015

Presented to:
State of Maine Office of the Public Advocate



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1 Introduction

The State of Maine (State) Office of the Public Advocate (OPA) retained BerryDunn to assist in consulting services in connection with a forensic audit that the Maine Public Utilities Commission (Commission) ordered under its summary of investigation, *Commission Initiated Investigation into Metering, Billing and Customer Communications Pertaining to Central Maine Power Company*, Docket No. 2018-00052. The original proceeding of Central Maine Power Company (CMP or the Company) was incorporated into *Investigation of Central Maine Power Company's Rates and Revenue Requirements*, Docket No. 2018-00194 and *Investigation of Central Maine Power Company's Metering and Billing Issues*, Docket No. 2019-00015. Upon the opening of Docket No. 2019-00015, BerryDunn's consulting services arrangement was amended to include testing of selected accounts for CMP customers that had filed complaints with the Commission's Consumer Assistance and Safety Division (CASD) during the period of May 1, 2018, through June 27, 2019.

1.1 Qualifications

My name is Julie Keim. I am a consultant and certified public accountant working for BerryDunn who focuses on the practice areas affecting the public utility industry. My business address is 100 Middle Street, Portland, Maine.

My experience and expertise make me well qualified to provide the OPA assistance with analyzing the forensic audit report and testing utility customer invoices. I have provided audit and consulting services to numerous rate-regulated entities in the State of Maine, as well as other states throughout New England. I have performed procedures on the process of accumulating measured data (for example, average daily usage in kilowatt-hours [kWh] and minutes of use) from the end-user premise to the customer invoice. I was assisted in this effort by other members of BerryDunn.

1.2 Background

In late October 2017, CMP went operational with its new Customer Information System (CIS) billing program. From December 1, 2017, until the present time, the CASD has received many calls from CMP customers, with the vast majority related to high bills and possible billing errors. While the CASD has been able to resolve a number of the complaints that have been filed to date, the Commission has found that additional information is needed in order to determine and understand the existence of any metering, billing, and customer communication problems affecting CMP's ability to provide service to its customers, as well as the source of such problems.

Based on these facts, on March 1, 2018, the Commission initiated a Summary Investigation of these metering, billing, and customer communication issues under 35-A M.R.S. § 1303(1)(C).

As set forth in the Commission's March 1, 2018, Notice of Investigation (March 1, 2018, Notice), the following issues were to be addressed as part of the Summary Investigation:¹

(1) Metering Issues

- (a) Are CMP's meters accurately reading customer usage?
- (b) Are CMP's advanced metering infrastructure (AMI) meters (also known as smart meters) accurately communicating with CMP's new CIS?

(2) Billing Issues

- (a) Are CMP's bills accurately reflecting usage?
- (b) Are CMP's bills utilizing the correct rates?
- (c) Are CMP's bills accurately calculating the total bill?
- (d) Is the Company able to identify billing error problems related to its new CIS billing system?
- (e) What problems has the Company identified to date?
- (f) Is the Company properly addressing those problems?

(3) Customer Communication

- (a) Is CMP answering and responding to calls from customers within a reasonable timeframe?
- (b) How has CMP reached and responded to customer complaints about high bills?
- (c) Is CMP providing reasonable and adequate responses to customers' calls?

Given that the issues surrounding the metering and billing aspect of the audit were highly technical and required an understanding of CMP's system and its interaction with its metering equipment, the Commission found that a forensic audit of these systems was necessary, and thus initiated an audit pursuant to the provisions of 35-A M.R.S. § 113. The Commission issued a Request for Proposals (RFP) and subsequently selected The Liberty Consulting Group (Liberty) to perform the audit of CMP's metering and billing functions. On July 10, 2018, the Commission issued an Order Modifying Scope of Audit, which expanded the scope of the Liberty's audit to include the customer communication issues identified in the March 1, 2018, Notice.²

¹ Docket No. 2018-00052, Notice of Investigation, filed March 1, 2018, Item No. 2

² Docket No. 2018-00052, Order Modifying Scope of Audit, filed July 10, 2018, Item No. 33

On December 20, 2018, Liberty submitted its Final Report of the Forensic Audit of CMP's Metering and Billing Systems (Audit Report, Liberty Report, or Report) to the Commission. The Commission made the Audit Report public by posting it on the Commission's CMS in Docket No. 2018-00052.³

On December 20, 2018, the same day the Liberty Report was issued, the Hearing Examiner issued a Procedural Order seeking comments from interested persons on the process to be followed to consider the Liberty Report. The Procedural Order specifically requested comment on the following three questions:⁴

- (a) Whether the Report should be considered as part of the Commission's current CMP rate investigation (Docket No. 2018-00194)
- (b) Whether the Report should be considered as part of a follow-up investigation
- (c) Whether the Report should be considered through some other vehicle

The OPA filed comments noting several of the same problems Liberty identified involving the rollout of the SmartCare System and arguing in favor of a follow-up response from Liberty and/or CMP. The OPA argued that there were sufficient grounds to initiate a formal investigation but that, given the confines of the schedule in the pending rate case, such an investigation should not occur in Docket No. 2018-00194. The OPA, therefore, recommended that a formal investigation, pursuant to 35-A M.R.S. § 1303(2), be initiated for all matters that were the subject of the investigation.⁵

On January 14, 2019, the Commission issued an Order and Notice of Investigation, which⁶:

- 1) Initiated a full investigation, in accordance with 35-A M.R.S. § 1303(2), into metering and billing issues affecting customers of CMP since October 2017 (Docket No. 2019-00015)
- 2) Initiated an investigation of CMP's customer service and communication issues, and incorporates that investigation into the Commission's ongoing investigation into CMP's revenue requirements and rates (Docket No. 2018-00194) and provides an additional opportunity to intervene in that case
- 3) Closed the Summary Investigation into CMP's metering, billing, and customer service issues (Docket No. 2018-00052)

³ Docket No. 2018-00052, Letter to Harry Lanphear, filed December 20, 2018, Item No. 41

⁴ Docket No. 2018-00052, Procedural Order, filed December 20, 2018, Item No. 42

⁵ Docket No. 2018-00052, Comments of the OPA, filed January 4, 2019, Item No. 43

⁶ Docket No. 2019-00015, Order and Notice of Investigation, filed January 14, 2019, Item No. 2

2 Requests

On June 24, 2019, the OPA submitted a proposal to test CMP customer accounts for a specified customer type and period of time. The OPA proposal included comparing the information retained in the head-end system (HES) to the information on customer invoices for the period of time following the close of the Liberty period through the date of the proposal.⁷

The OPA proposal sought the following data from CMP for each of the identified accounts:

- a. Copies of customer bills for the two billing periods preceding the date of the customer's high-usage complaint, as well as the subsequent billing period. For example, if the customer complained about high usage in February 2019, the OPA requested data for the two bills that preceded the date of the complaint, which would be December 2018 and January 2019, as well as the subsequent billing period for February 2019.
- b. The head-end data captured for each of the bills identified in the paragraph above, including the account number, the meter number, and daily register reads, which correspond to the account read dates for each period requested. If the head-end data is no longer retained, the OPA requested that CMP provide the data from the Meter Data Management System.

If any of these accounts include non-AMI meters, the OPA requested that CMP provide the reading from the field collection system (FCS).

From analysis of this data, the OPA's proposal stated that it would determine the number of accounts that contain anomalies between the HES or FCS readings and the usage amount recorded on the bill. The proposal further provided that from the subset of accounts that show an anomaly, the OPA would request further information from CMP to engage in additional testing, such as hourly interval data or other information from which the OPA would attempt to identify the source of the anomaly.

The Commission issued an Order approving the OPA's proposed testing protocol on June 27, 2019.⁸ The Order required CMP to file the OPA's requested data by July 9, 2019. Due to technical difficulties, CMP was unable to transfer the data until July 10, 2019.⁹ The Commission

⁷ Docket No. 2019-00015, OPA Proposal for Testing on Central Maine Power Accounts, filed June 24, 2019, Item No. 82

⁸ Docket No. 2019-00015, Procedural Order on OPA's Testing Proposal and Scheduling Status Conference, file June 27, 2019 (Corrected), Items 86.

⁹ Docket No. 2019-00015, Letter from Rich Hevey to Harry Lanphear, July 10, 2019, Item 91.

issued a scheduling order that gave the OPA until August 30, 2019, to file its testimony.¹⁰ In an order issued on August 27, 2019, the Commission granted the OPA's request for a one-week extension to file its testimony.¹¹

2.1 Objective

This testimony presents the results of our analysis utilizing the OPA's proposed testing protocol, which included comparing the meter reading per the customer invoice to the meter reading retained in the HES or FCS for customers that filed a complaint with the CASD between May 1, 2018 and June 27, 2019.

There are differences between the scope of the work that we performed and the work that Liberty performed as set forth in its Audit Report. As noted in Section 2, Liberty was engaged by the Commission to perform the audit of CMP's metering and billing functions. Liberty was tasked with looking at the metering and billing system as a whole, for all of CMP's customers and accounts, for the six-month time period following the cutover to the SmartCare System.

The scope of our work was significantly different from Liberty's audit. As set forth in the OPA's proposed testing protocol, our objective was to focus on the time frame following the completion of Liberty's work from May 1, 2018 forward. This time period began six months after the cutover date, which should eliminate the immediate post-go-live issues. In addition, unlike Liberty's audit of the system as a whole, the OPA testing protocol focused on the 1,370 customer accounts that involved customers who had complained about their invoices presenting high usage that they believed was inaccurate. While this approach was anticipated to be time consuming and labor intensive, we expected this process to identify whether there were issues or variances ultimately impacting customer invoices.

Another important distinction between our report and the Liberty Report is the nature of the data subject to analysis. Liberty's engagement with the Commission was designed to match values of corresponding meter registrations of usage stored in each system: Head End, Field Collection, Meter Data Management and SmartCare for all of CMP's customers during the period from November 1, 2017 to April 30, 2018¹². In our analysis, we compared the meter reading from the HES and FCS source data directly to the invoice for customers that filed complaints to the CASD during the period of May 1, 2018 to June 27, 2019. We focused our analysis on individual customer accounts, customer invoices, and meter numbers.

¹⁰ Docket No. 2019-00015, Procedural Order (Scheduling), Item 103.

¹¹ Docket No. 2019-00015, Procedural Order (Scheduling) Item 123.

¹² Docket No. 2018-00052, The Liberty Consulting Group – Final Report page 8

Our analysis was not intended to manually test every invoice with a potential billing issue. Instead, it was designed to identify whether customer issues were still ongoing more than 20 months after the go-live date of the SmartCare System. The scope of our engagement did not include testing the meter readings at the meter location. Our analysis started with a comparison of the meter readings and meter read dates on the customer invoice to the meter readings and meter read dates retained in the HES or FCS.

The objective of our analysis was to compare meter readings (per customer invoices) to the data retained in the HES or FCS. As part of our analysis, we also identified billing issues unrelated to this comparison. While we have reported the findings related to billing issues in this report; our analysis was not intended to identify all billing issues related to the invoices provided in this analysis. The findings we identify in Section 3 of this report could impact all CMP customers and are not just related to the subset of complaint customers that we analyzed.

2.2 Detailed Procedures

On July 10, 2019, CMP provided BerryDunn with the following information:

- Copies of customer invoices (provided in Adobe Acrobat PDF file format). Each customer invoice was provided as a separate PDF file, with the invoice number used as the file name).
- Data from the HES information, which was extracted into an Excel workbook and included both AMI and FCS (herein referred to as “HES data”). The Excel workbook included the following fields: contract account number, meter number, complaint date, register group, read date, meter reading and read source.
- A list of each customer account number, account name, and invoice number.

It is our understanding that the invoices that were pulled systematically from the SmartCare System had an “R1” identifier at the beginning of the file name, whereas invoices pulled manually from the SmartCare System did not begin with the “R1” identifier. For example, an invoice that was pulled manually from the SmartCare System would have the file name 700000022222.PDF. If the same invoice was pulled systematically from the SmartCare System, the file name would be R1700000022222.PDF.

We utilized the software tool Interactive Data Extraction and Analysis (IDEA) to import most of the PDF of customer invoices into an Excel file. We were not able to import invoices with different formatting directly into the Excel file. These included customer invoices with both use and generation meters, multipliers, etc. which we manually entered these invoices into the Excel file.

We then utilized an Excel formula to compare the account number per the invoice in the Excel file to the account number in the HES data Excel file. The next step in the formula was to compare the invoice read date, plus one day, to the HES read date. We used the invoice read date plus one day because the HES reading typically occurs just after midnight. Because the HES reading just after midnight actually represents meter usage as of the end of the prior day, we compared invoice read date to the next HES read date.

When the formula identified an exact match of the account number and meter read date, the account number, meter number, complaint date, read date, and meter reading populated the cells. If the formula identified a difference between the invoice information and the HES information, the difference was populated in the cell. We have described these differences in Table 1.

If the formula did not identify an exact match of the account number and meter read date, the formula populated the cell with “NA”. We have described the “NA” results in Table 1.

Table 1 depicts the number of entries that resulted in “NA” or differences that resulted from the initial comparison of the customer invoice information to the HES or FCS information. Out of the approximately 5,700 meter reading comparisons:

Table 1: Number Instances of “NA” or Differences Identified in the Initial Comparison

We identified the following categories of “NA”:	Number of instances identified
The invoice was an estimated invoice because there was no meter reading available (19 invoices were outside of the OPA testing timeframe requested and are included in the count below)	144
The read date on the invoice was outside of the OPA testing timeframe requested (two months prior, one month post the customer complaint date)	678
No HES data was provided for the meter number on the invoice	110
We identified the following categories of differences:	Number of instances identified
The total kWh per the “Your Meter Details” display box on the invoice did not agree to the calculation of the difference between the current meter reading and the prior meter reading	75
The meter reading on the invoice did not match the HES or FCS meter reading	105
The invoice indicated the meter reading was estimated, however HES or FCS data was available	59
The account number assigned to a meter number per the invoice did not match the account number assigned to the meter number per the HES or FCS data	8

For each “NA” result and for each difference identified when comparing the account number, meter number, read date, or meter reading from the invoice to the HES data, we manually observed each calculation to determine the cause of the “NA” or difference.

The process of observing each calculation manually was labor-intensive and time-consuming. For each “NA” or difference identified, we documented the reason for that result, or provided CMP with a list of differences identified and requested additional information to determine the cause of the “NA” or difference.

The manual process involved the following steps:

- We identified each “NA” or difference populated in the Excel file, as categorized in the above tables.
- We then looked at the customer invoice in PDF file format. We located the PDF of the customer invoice by utilizing the search function in the document folder, noting that sometimes we had to add “R1” to the beginning of the invoice number in the search function.
- We then looked at the HES data, provided in Excel, by utilizing the filter function on the account number, and compared this information to the invoice details imported into the Excel file.
- For the invoices that were outside of the OPA testing timeframe requested (two months prior, one month post the customer complaint date), we did not request additional information and therefore could not compare the meter readings.

3 Findings

In conducting our work, we made every effort to review data provided by CMP on July 10, 2019 and any subsequent correspondence, including an onsite working session at CMP's office in Augusta, Maine on August 19, 2019. We were still receiving information and responses from CMP as of August 21, 2019. In the interest of filing this testimony in a timely manner, information provided after August 19, 2019 may not have been considered in these findings. The examples provided in Section 3.1 do not represent every invoice on which we identified errors. The examples are provided to assist in understanding the findings discussed below.

Overview of Findings – Customer Invoices

During our analysis, we identified the following types of errors when comparing the customer invoices to the HES data. The referenced examples are contained in numerical order in Section 3.2 of this report. We identified the following issues on some invoices:

1. The meter read date on the invoice did not match the meter read date per the HES or FCS. CMP identified this as Defect 6621 on March 29, 2019.¹³ As of the date of this report, Defect 6621 has not been corrected. *See Examples 1, 2, 6 in Section 3.2.*
2. In the billing period when a meter exchange takes place, some meter readings for the new meter were estimated as 0 usage for the billing period. This causes no usage to be billed to a customer during the first month of the new meter, which presents the following issues:
 - a. Customers have unpredictable billing, due to the decreased estimate in kWh usage in the first month of a new meter and an increased kWh usage in the subsequent month when the usage is trued up.
 - b. Residential customers receive a 750 kWh per month residential exemption from Maine sales tax. If the usage from the first month of the new meter is billed when the usage is trued-up in a subsequent month, a customer is charged Maine sales tax on usage that would have been exempted if billed correctly on the first invoice. Customers are penalized for this error and currently have no way to determine how much usage should have been billed in which month.

CMP identified this as Defect 4711 on June 18, 2018¹⁴. As of the date of this report, Defect 4711 has not been corrected. *See Examples 3, 4, 5 in Section 3.2.*

¹³ as described in 'Summary of Billing Cases Identified as of 05.01.2019' filed in Docket No. 2018-194, LOO-001-031, Attachment 1' Exception 58

¹⁴ as described in 'Summary of Billing Cases Identified as of 05.01.2019' filed in Docket No. 2018-194, LOO-001-031, Attachment 1' Exception 42

3. In the billing period when a meter exchange takes place, some meter readings were presented as 0 for the outgoing meter reading. The HES does not store the outgoing meter reading. It is our understanding that the outgoing meter reading is transmitted from the field and is stored only in the SmartCare System. Since the OPA did not request SmartCare System data, we could not determine if the outgoing meter reading was correct. *See Examples 2, 3, 4, 6, 7 in Section 3.2.*
4. A CMP customer service representative can change the meter reading in the SmartCare System, but the entry is not identified as a manual change or estimated reading on the invoice. *See Examples 8, 9, 10 in Section 3.2.*
5. Some customer invoices have numerous months of estimated usage based on the 'Your Monthly Usage Summary' graph. In some instances, it took several months before the actual usage was trued up, which resulted in unpredictable billing. Per Commission Rule 815.8.L "a utility must obtain an actual meter reading every month", unless certain circumstances exist. *See Examples 11, 12, 13 in Section 3.2.*
6. The meter reading was estimated; however, some invoices did not indicate an estimated reading with an asterisk (*). Further the meter reading on these invoices did not agree with the meter reading retained in the HES or FCS source data. *See Examples 14, 17, 18, 19 in Section 3.2.*
7. Some customers were billed over 90 days meter usage on one invoice, causing customers to have unpredictable billing. *See Examples 17, 18, 19, 20, 21 in Section 3.2.* This appears to not be in accordance with Commission Rule Ch. 815.8.A which requires "at least one monthly billing option."
8. Some invoices contained an estimated reading, even though an accurate meter reading was available from the HES or FCS. *See Example 13 in Section 3.2.*
9. The total number of days presented on some invoices did not align with the actual number of days the usage occurred. *See Examples 1, 3, 11, 13 in Section 3.2.*
10. On some invoices, the prior meter reading did not match the prior invoice meter reading or was displayed as a 0. *See Examples 11, 15, 16, 23 in Section 3.2.*
11. On some invoices, the calculation of the "current meter reading" less the "prior meter reading" did not equal the total kWh per 'Your Meter Details' display box on the invoice. *See Examples 2, 6, 15, 17, 18, 19, 20 in Section 3.2.*
12. On some invoices, the kWh billed per the delivery charges calculation did not agree to the total kWh per 'Your Meter Details' display box on the invoice. *See Examples 2, 19, 20 in Section 3.2.*
13. On some invoices, the billing periods displayed in the delivery charges calculation were not sequential and/or overlapped other billing periods on the invoice. *See Examples 6, 18, 19 in Section 3.2.*

14. There were additional lines of kWh in the delivery charges calculation on some invoices that were not included in the billed charges. See *Examples 7, 17 in Section 3.2*.
15. The delivery rates were not displayed in the delivery charges calculation on some invoices. *Examples 6, 18, 19, 20, 22 in Section 3.2*.
16. The 'Your Average Daily Usage (kWh)' graph was incorrect due to inaccurate meter readings, inaccurate number of days, and/or other billing presentation issues. See *Examples 2, 3, 4, 5, 6, 7 in Section 3.2*.

Overview of Findings – Daily Meter Readings per HES AMI Source Data or FCS Source Data

Although the identification of the following findings was not the objective of our analysis, we noted certain trends in meter readings that we believe are important, including:

17. For some meters, meter readings were not recorded in the HES for numerous consecutive days. We noted eight meters that did not have meter readings in the HES for more than ten consecutive days. See *Example 24 in Section 3.2*.
18. We noted an instance where the cumulative meter reading per the FCS data decreased from one month to the next month's cumulative meter reading. See *Example 8 in Section 3.2*.

3.1 Summary of Findings

The OPA's proposed testing protocol was designed to focus on accounts involving customers with high-usage complaints, which were, understandably, of great concern and had generated numerous complaints and press coverage. The cause for the high-usage remains elusive in spite of our intense review. In conducting our analysis, however, we have discovered that the problems with the SmartCare System are more widespread and varied than we had anticipated.

Our analysis of 1,370 customer accounts and more than 5,400 customer invoices revealed numerous ongoing errors in the billing process. Customer invoices are depicting incorrect information in a number of critical areas, including:

- Meter readings
- Meter read dates
- The total number of days presented on the invoice are not the actual number of days the usage was recorded
- Calculation errors in total kWh in the 'Your Meter Details' box on the invoice
- Total kWh billed per the delivery charges calculation differs with the total kWh in the 'Your Meter Details' box on the invoice
- Billing periods that are not sequential and/or overlap in the delivery charges calculation, and additional kWh displayed in the delivery charges section do not factor into delivery charges calculation
- Two separate invoices with the same invoice number showing different usage amounts mailed to a customer

In addition, we identified a serious issue in which some customers are being subjected to Maine sales tax that they should not be paying due to the way CMP has billed the usage on their accounts. These customers are not receiving the benefit of the 750 kWh per month residential exemption due to delayed billing for new meter installations when the first invoice does not bill usage and the second invoice bills the combined usage across two billing periods. We also identified instances in which customers are not getting the benefit of the delivery rate because they are being billed the minimum monthly charge for a month with no usage billed.

3.1.1 Detailed Look at Three Defects

Although three of the errors identified above are included as defects in the CMP's 'Summary of Billing Cases Identified as of 05.01.2019',¹⁵ the severity and impact of these defects is not readily apparent from CMP's memo. We describe these defects in more detail below:

1. On June 14, 2018, CMP discovered 'Billing Case 42 – Estimation Issues with Meter Changes with Register Group Changes – Defect 4711.' CMP's explanation of Defect 4711 is "some exchanged meters with a register group change set periodic consumption zero." This causes estimated bills to be estimated at zero consumption and usage is "caught up" when the next actual meter read is obtained and billed. CMP's target date for this defect to be corrected was June 14, 2019. This defect has not been corrected as of the date of this report. As described fully in Section 3.2, Example 3:
 - The number of days per 'Your Meter Details' box on the invoice is not the number of days the usage actually occurred. This causes the following issues to occur:
 - If the new meter was installed on August 2, 2018 and the bill read date was estimated as 0 on August 30, 2018, the invoice shows 0 usage for 28 days on the first invoice.
 - On the subsequent invoice, the invoice bills 2,010 kWh for the period of August 30, 2018 to September 28, 2018. The invoice incorrectly presents this usage as occurring over 29 days, when it actually occurred over 57 days (the 28 days from the first invoice and 29 days from the subsequent invoice). This causes two issues:
 - If a customer's usage is greater than 750 kWh, the customer is billed the incorrect amount of Maine sales tax. This happens because the customer did not receive the benefit of the 750 kWh per month residential exemption due to the delayed billing of usage on the new meter. CMP incorrectly calculated the Maine sales tax on usage over 750 kWh since the system considered the entire 2,010 kWh as occurring in the 29 days on the second invoice, when some of that usage should have been billed on the first invoice.
 - The amount due on the customer invoice is lower for the first month and higher for the second month, causing unpredictable balances due from month to month.
 - The average daily usage (kWh) per 'Your Monthly Usage Summary' graph is incorrect, because the usage occurred over 59 days, not 29 days as displayed on the second invoice.

¹⁵ As described in 'Summary of Billing Cases Identified as of 05.01.2019' filed in Docket No. 2018-194, LOO-001-031, Attachment 1

2. On March 29, 2019, CMP identified 'Billing Case 58 – Scheduled Meter Read Date Presented on Bill / Not Actual Meter Read Date for Manual Meter Reads' – Defect 6621. Defect 6621 causes meter read dates on some invoices to differ from the actual date the meter read was obtained. This occurs when the meter reading is obtained on a day other than the scheduled meter read date. CMP has not set a date for this defect to be corrected. This defect has not been corrected as of the date of this report.
 - The meter read date on the invoice is incorrect.
 - The number of days per 'Your Meter Details' box on the invoice is not the number of days the usage actually occurred. This causes the following issues to occur.
 - The average daily usage (kWh) per 'Your Monthly Usage Summary' graph is incorrect.
 - The amount due on the customer invoice can fluctuate from month to month.
3. On January 31, 2018, CMP identified 'Billing Case 32 – Presentment: Selected Interim Meter Readings' – Defect 5885. Defect 5885 occurs if a customer has a meter field visit for reasons other than a meter reading. The bill incorrectly presents the collected interim reading or 0 as the prior bill reading. CMP stated that this defect was corrected as of April 6, 2018; however, we identified this error on at least two different invoices during our analysis. Instances of this defect are described in Section 3.2, Example 16 (which occurred after April 6, 2018).
 - The customer is not able to determine if the correct kWh is billed, as the prior meter reading is not displayed.

3.1.2 Other Noted Issues

We identified the following issues related to meter readings that were not included as a defects in CMP's 'Summary of Billing Cases Identified as of 05.01.2019'¹⁶:

- In certain instances, when a customer requests a meter be removed and exchanged for a new meter, the invoice incorrectly presents the outgoing meter reading as 0. The customer is not able to determine if the correct kWh is billed since the meter reading is not displayed. This issue is distinct from Defect 5950, in which CMP identifies the issue of when a customer is not billed for the usage of the outgoing meter. This issue is when the meter reading on the outgoing meter is displayed as 0. Instances of this issue are described in Section 3.2, Examples 2, 3, 4, 6, 7.

¹⁶ As described in 'Summary of Billing Cases Identified as of 05.01.2019' filed in Docket No. 2018-194, LOO-001-031, Attachment 1

- That the outgoing meter reading is not retained in the HES or FCS. CMP explained that the final meter reading is transmitted to, and retained exclusively in, the SmartCare System.

3.1.3 Conclusions

After eight weeks of intense review and analysis, we cannot isolate a defect, set of defects or root cause for the numerous complaints relating to high usage. Nevertheless, based upon this review and analysis, we cannot rule out that these complaints have merit. Based on the results of our analysis, the SmartCare System continues to produce countless invoices that contain inaccurate and misleading information.

Our analysis compared approximately 5,700 meter readings on invoices to the HES or FCS source data. We quantified the number of instances where we identified the following errors, as shown in Table 2.

Table 2: Instances Identified for Each Finding

Findings	Instances Identified
The meter read date on the invoice did not agree to meter read per the HES or FCS source data.	163
In the billing period of a meter exchange, the first month's usage for the new meter was estimated to be 0.	9
In the billing period of a meter exchange, the meter reading for the outgoing meter was displayed as 0.	22
The prior meter reading on the invoice was displayed as a 0 and it was not a new meter.	25
The total kWh per the 'Your Meter Details' box on the invoice did not agree to the difference between the current meter reading and the prior meter reading.	75
The meter reading on the invoice was greater than 90 days.	33

These instances are not insignificant, since they can impact all CMP customers and are not isolated to just the subset of customers with high-usage complaints that we observed in our analysis. We know this because the errors affect customers with meter exchanges, delayed billing and other non-usage invoice presentation issues. Moreover, because of the wide range of problems, it is likely that these types of problems have occurred, and continue to occur, on the invoices of other CMP customers.

3.2 Examples of Findings

EXAMPLE 1: Discrepant Meter Read Dates

We did not initially receive the HES data for the meter number listed on the invoice. In follow-up to our inquiry, CMP provided the meter usage for the meter number and meter read dates listed on the invoice. As shown in Exhibit 1 below, we noted that the meter read date on the invoice was May 3, 2018; however, the meter reading on the FCS reading was taken on May 2, 2018.

Exhibit 1: Comparison of Meter Readings from Invoice to FCS

Meter reading per Invoice:

Your Meter Details		Read Cycle 04				
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	05/03/2018	15,800	04/04/2018	14,674	29	1,126

Meter reading per FCS:

Meter	Read Date	Reading
[REDACTED]	3/8/2018	No Read
[REDACTED]	4/3/2018	14674
[REDACTED]	5/2/2018	15800
[REDACTED]	6/5/2018	17067

Per further inquiry, CMP identified this variance in meter read dates as being due to Billing Exception 58, Defect 6621. This is described in 'Summary of Billing Cases Identified as of 05.01.2019' filed in Docket No. 2018-194, LOO-001-031, Attachment 1' that in certain circumstances the meter read date presented on the invoice may not match the actual date the meter read was obtained. This occurs when the meter read is obtained on a day other than the schedule meter read date. While the meter reading is accurate as of May 3, 2018, the total number of days on the invoice is incorrect and the average daily usage is incorrect. As of the date of this report, this defect has not been fixed.

EXAMPLE 2: Multiple Invoice Errors

The invoice shown in Exhibit 2 demonstrates a number of errors that could cause a customer to question its accuracy.

Exhibit 2: Invoice Errors

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery
Payments received - Thank you

Balance Forward

Delivery Charges
Delivery Charges: Residential (02/06/2019 - 03/06/2019)

Up to 50 KWH @ \$11.00
914 KWH @ \$0.068334

16 KWH

Delivery Charges: Residential (02/11/2019 - 02/11/2019)
Delivery Service:
Maine Sales Tax

Total Current Delivery Charges

Other Charges
Elec Mech Meter Opt-Out Fee

Total Other Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 04

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	03/06/2019	5,171*	02/05/2019	0	29	626
	02/11/2019	0	02/10/2019	77,938	1	338

*Estimated Reading

Customer Information for Your Delivery Service
Delivery rates are approved by the Maine Public Utilities Commission. For bills that cover both electricity and gas, CMP forwards energy-supply payments to the appropriate energy provider. For a schedule of CMP delivery rates, call us at 1.800.686.4044. TTY for the deaf: 1.800.445.5631.

5,171 current meter reading
0 prior meter reading

Calculated Total kWh used (on the first meter listed)

Total = 980
Does not agree with Total kWh below

For example:

- The customer account appears to have had a meter exchange on February 11, 2019. The old meter was removed on February 11, 2019, and the meter reading on the invoice was displayed as 0. CMP explained that the final meter reading is performed in the field and transmitted to, and retained only in, the SmartCare System. Since the HES does not capture the final meter reading, we could not determine if the correct Total kWh was billed.
- The meter reading for the old meter had a prior read date of February 10, 2019, but it was actually a meter reading from February 6, 2019. Per further inquiry, CMP identified this variance in meter read dates as being due to Billing Exception 58, Defect 6621, as described in more detail in Section 3.1.
- The kWh billed in the delivery charges did not align with the Total kWh per the 'Your Meter Details' box on the invoice.
- The Total kWh per the 'Your Meter Details' did not align with the difference between the current meter reading and the prior meter reading.

- Per the invoice, the average daily usage (kWh) with the old meter was 338 daily kWh (calculated using 338 kWh for one day). The average daily usage (kWh) with the new meter was 21.6 daily kWh (calculated using 626 kWh for 29 days). This is inaccurate information and could cause the customer to question the accuracy of these meter readings.

EXAMPLE 3: Skewed Monthly Total kWh Usage and Impact on Maine Sales Tax

The customer account shown in Exhibit 3 had its meter exchanged on August 2, 2018, two days after the prior read date of July 31, 2018. When the old meter was removed, the meter reading on the invoice was displayed as 0. CMP explained that the final meter reading is performed in the field and transmitted to, and retained only in, the SmartCare System. Since the HES does not capture the final meter reading, we could not determine if the correct Total kWh was billed.

Exhibit 3: Invoice During a Month in which the Customer's Meter was Exchanged

Your Meter Details		Read Cycle 01				
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
██████████	08/30/2018	0*	08/02/2018	0	28	0
██████████	08/02/2018	0	07/31/2018	86,294	2	118

*Estimated Reading

An estimated reading of 0 was calculated on the new meter for the period of August 2, 2018 through August 30, 2018. We noted that when a meter is exchanged, the first invoice following the exchange might not bill usage for the initial billing period of the new meter number. CMP has identified this as Defect 4711. This defect affects some meters that are exchanged and change a register group. The defect causes the SmartCare System to estimate a 0 meter reading at the first billing meter read date. In the case of the invoice in Exhibit 3, the first bill following the meter exchange also had an estimated meter reading of 0. This caused the second invoice after the exchange, dated September 28, 2018, to “catch up” the usage from the meter exchange date of August 2, 2018, as shown below in Exhibit 4.

Exhibit 4: Second Invoice Following the Date in which the Customer's Meter was Exchanged

Your Meter Details		Read Cycle 01				
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
██████████	09/28/2018	2,010	08/30/2018	0	29	2,010

The 2,010 kWh meter reading includes usage from August 2, 2018, to September 28, 2018, which means that the “Number of Days” column in the invoice does not represent the actual number of days of usage billed. Defect 4711 has not been fixed as of the date of this report.

In addition to the issues identified above, this defect can have other unintended consequences on customer billing, such as:

- Skewed calculation for average daily usage:

- The average daily usage for the period from August 2, 2018, to August 30, 2018, is 0 kWh (arrived at by dividing the 0 Total kWh shown in the 'Your Meter Details' table by the 28 days in the billing period).
- The average daily usage for the period from August 30, 2018, to September 28, 2018 is 69 kWh (arrived at by dividing the 2,010 Total kWh shown in the 'Your Meter Details' table by the 29 days in the billing period).
- The usage of 2,010 kWh on the September 28, 2018 invoice actually represents the usage from the new meter's install date on August 2, 2018, through the next month's invoice meter read date of September 28, 2018. Therefore, the average daily usage should be calculated based on a total of 57 days, instead of 29 days. If the invoice displayed the actual read dates of the newly installed meter, this would result in a calculation of an average daily usage of 35 kWh (arrived at by dividing 2,010 Total kWh shown in the 'Your Meter Details' table by 57 days since the last meter reading).
- Although the meter usage in total over the 57-day period agrees to the HES meter reading, the customer would not be able to tell from the September invoice that the usage billed covers 57 days and not 29 days as presented on the invoice.
- Potentially inaccurate calculations for the Maine sales tax:
 - The State of Maine applies a residential sales tax exemption of 750 kWh per month. Since the 2,010 kWh usage for the period of August 2, 2018, through September 28, 2018, was entirely billed on the September 28, 2018, invoice, the customer was charged Maine sales tax on the delivery and supply charges calculated on the usage over the 750 kWh per month residential exemption, as shown in Exhibit 5.

Exhibit 5: Maine Sales Tax Charges Based on 57 Days of Usage Condensed into a Single Month's Invoice

Your Central Maine Power Delivery Service Account Detail						
Prior Balance for Central Maine Power Delivery						\$71.54
Payments received						\$0.00
Balance Forward						\$71.54
Delivery Charges						
Delivery Charges: Residential (08/31/2018 - 09/28/2018)						
Delivery Service:						
		2,010 KWH				
		Up to 50 KWH	@\$11.00			+\$11.00
		1,960 KWH	@\$0.068334			+\$133.93
						+\$4.74
Total Current Delivery Charges						\$149.67
Other Charges						
Elec Mech Meter Opt-Out Fee						+\$15.89
Total Other Charges						\$15.89
Central Maine Power Account Balance						\$237.10
Your Meter Details						
Read Cycle 01						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	09/28/2018	2,010	08/30/2018	0	29	2,010

- If the 2,010 kWh were billed across the August and September invoices (e.g., 1,005 kWh per invoice), the customer would only have been charged Maine sales tax for approximately 255 kWh each month for both delivery and supply charges. As shown in Exhibit 6, this defect in the billing system resulted in an estimated overpayment of \$6.09 in Maine sales tax on delivery and supply charges.

Exhibit 6: Example of Maine Sales Tax Calculations Across Two Months vs. One Month

	Estimated if Billed Correctly			Actual Billed
	Month 1	Month 2	Total	
Total KWH	1,005	1,005		2,010
Residential exemption	(750)	(750)		(750)
Taxable KWH	255	255		1,260
Delivery Rate	0.068334	0.068334		0.068334
Taxable Delivery Charges	17.43	17.43		86.10
Maine Sales Tax Rate	5.5%	5.5%		5.5%
Maine Sales Tax	\$ 0.96	+ \$ 0.96	= \$ 1.92	\$ 4.74
				\$ (1.92)
Estimated overbilled Maine Sales Tax on Delivery Charges				\$ 2.82
	Estimated if Billed Correctly			Actual Billed
	Month 1	Month 2	Total	
Total KWH	1,005	1,005		2,010
Residential exemption	(750)	(750)		(750)
Taxable KWH	255	255		1,260
Supply Rate	0.079206	0.079206		0.079206
Taxable Supply Charges	20.20	20.20		99.80
Maine Sales Tax Rate	5.5%	5.5%		5.5%
Maine Sales Tax	\$ 1.11	+ \$ 1.11	= \$ 2.22	\$ 5.49
				\$ (2.22)
Estimated overbilled Maine Sales Tax on Supply Charges				\$ 3.27
Estimated overbilled Maine Sales Tax on Delivery and Supply Charges				\$ 6.09

EXAMPLE 4: Inaccurate Total kWh Usage Reported on Invoices in Months When Meters Were Exchanged

The customer account shown in Exhibit 7 had its meter exchanged on June 11, 2018, ten days after the prior read date of June 1, 2018. When the old meter was removed, the meter reading on the invoice was displayed as 0. CMP explained that the final meter reading is performed in the field and transmitted to, and retained only in, the SmartCare System. Since the HES does not capture the final meter reading, we could not determine if the correct Total kWh was billed.

Exhibit 7: Invoice During a Month in which the Customer's Meter was Exchanged

Your Meter Details		Read Cycle 02				
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
AB29427737	07/02/2018	0*	06/11/2018	0	21	0
G052492366	06/11/2018	0	06/01/2018	51,099	10	356

*Estimated Reading

An estimated reading of 0 was calculated on the new meter for the period of June 11, 2018 through July 2, 2018. As with Example 3, we noted that when a meter is exchanged, the first invoice following the exchange might not bill usage for the initial billing period of the new meter number. CMP has identified this as Defect 4711. This defect affects some meters that are exchanged and change a register group. The defect causes the SmartCare System to estimate a 0 meter reading for the billing period of the exchange. It then causes the second invoice after the exchange to “catch up” the usage from the meter exchange date. In the case of the invoice in Exhibit 7, the first bill following the meter exchange had an estimated meter reading of 0.

We noted that the average daily usage (kWh) per the old meter was 35.6 daily kWh (calculated using 356 kWh for 10 days). The average daily usage (kWh) per the new meter installed was 0 daily kWh (0 kWh for 21 days). We did not test the subsequent invoice on the account because the billing period was outside of the period the OPA requested for testing. However, this inaccuracy in meter readings in conjunction with the exchanged meter further supports our conclusion that invoices do not represent the actual number of days of usage billed and therefore displays an incorrect average daily usage. The Company's target date for this defect to be corrected was June 14, 2019. This defect has not been fixed as of the date of this report.

EXAMPLE 5: Inaccurate Total kWh Usage Reported on Invoices in Months When Meters Were Exchanged

The customer account shown in Exhibit 8 had its old meter removed on March 4, 2019, and the meter reading on the invoice did not agree to the HES. CMP explained that the final meter reading is performed in the field and transmitted to, and retained only in, the SmartCare System. Since the HES does not capture the final meter reading, we could not determine if the correct Total kWh was billed.

Exhibit 8: Invoice During a Month in which the Customer's Meter was Exchanged

Your Meter Details			Read Cycle 08			
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	03/12/2019	0*	03/05/2019	0	8	0
[REDACTED]	03/04/2019	78,659	02/11/2019	77,435	21	1,224

An estimated reading of 0 was calculated on the new meter for the period of March 5, 2019 through March 12, 2019. As with Example 3, we noted that when a meter is exchanged, the first invoice following the exchange might not bill usage for the initial billing period of the new meter number. CMP has identified this as Defect 4711. This defect affects some meters that are exchanged and change a register group. The defect causes the SmartCare System to estimate a 0 meter reading for the billing period of the exchange. It then causes the second invoice after the exchange to “catch up” the usage from the meter exchange date. In the case of the invoice in Exhibit 8, the first bill following the meter exchange had an estimated meter reading of 0.

We noted that the average daily usage (kWh) per the old meter was 58.3 daily kWh (calculated using 1,224 kWh for 21 days). The average daily usage (kWh) per the new meter installed was 0 daily kWh (0 kWh for 8 days). We did not test the subsequent invoice on the account because the billing period was outside of the period the OPA requested for testing. However, this inaccuracy in meter readings in conjunction with the exchanged meter further supports our conclusion that invoices do not represent the actual number of days of usage billed and therefore displays an incorrect average daily usage. The Company's target date for this defect to be corrected was June 14, 2019. This defect has not been fixed as of the date of this report.

EXAMPLE 6: Multiple Invoice Errors

The invoice shown in Exhibit 9 contains a number of errors that could cause a customer to question the accuracy of the invoice.

Exhibit 9: Invoice Errors

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery

Payments received - Thank you

Balance Forward

Delivery Charges

Delivery Charges: SGS Secondary 1 Phase (03/16/2018 - 04/13/2018)

Service Charge - Single Phase

Delivery Service: 69 KWH

Delivery Charges: SGS Secondary 1 Phase (04/14/2018 - 05/14/2018)

Service Charge - Single Phase

Delivery Service: 831 KWH

Delivery Charges: SGS Secondary 1 Phase (05/15/2018 - 06/14/2018)

Service Charge - Single Phase

Delivery Service: 830 KWH

Delivery Charges: SGS Secondary 1 Phase (06/15/2018 - 07/16/2018)

Service Charge - Single Phase

Delivery Service: 1,319 KWH

Delivery Charges: SGS Secondary 1 Phase (06/15/2018 - 06/30/2018)

Service Charge - Single Phase

Delivery Service: 1,319 KWH

Maine Sales Tax

Total Current Delivery Charges

Central Maine Power Account Balance

Total = 4,368

Does not agree with Total kWh below

Your Meter Details

Read Cycle 11

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	07/16/2018	4,352	04/11/2018	0	96	6,990
	04/11/2018	0	03/15/2018	13,594	27	16

4,352 current meter reading

0 prior meter reading

4,352 Calculated Total kWh used (on the first meter listed)

For example:

- The customer account shown in Exhibit 9 had its old meter removed on April 11, 2018, and the meter reading on the invoice was displayed as a 0. CMP explained that the final meter reading is performed in the field and transmitted to, and retained only in, the SmartCare System. Since the HES does not capture the final meter reading, we could not determine if the correct Total kWh was billed.
- Although the meter read date on the invoice is July 16, 2018, the FCS meter reading was for the read date of July 14, 2018. Per our further inquiry, CMP identified this variance in meter read dates as being due to Defect 6621. This defect that has not been corrected as of this report date.

- The kWh billed in the Delivery Charges did not agree to the Total kWh per the 'Your Meter Details' table on the invoice.
 - The total itemized costs for Delivery Charges in the invoice from March 16, 2018, to July 16, 2018, equals **4,368 kWh** (based on 69+831+830+1,319+1,319).
 - The Total kWh shown in the 'Your Meter Details' table shows **6,990 kWh** from April 11, 2018 to July 16, 2018, as well as **16 kWh** from March 15, 2018, to April 11, 2018.
- The billing periods were not in agreement between the 'Your Meter Details' table on the invoice and the date ranges provided under Delivery Charges.
 - The billing periods in the 'Your Meter Details' table were:
March 15, 2018 to April 11, 2018
April 11, 2018 to July 16, 2018
 - The date ranges under Delivery Charges were:
March 16, 2018 to April 13, 2018
April 14, 2018 to May 14, 2018
May 15, 2018 to June 14, 2018
June 15, 2018 to July 16, 2018**

**In addition, there was a duplicative billing period of June 15, 2018, to June 30, 2018, with the same kWh usage as the June 15, 2018, to July 16, 2018, date range, even though the latter had 16 more days in the period.
- The kWh values per the Delivery Charges were equally allocated between billing periods, and we were not provided HES data to determine if the breakdown by billing period was accurate. For example:
 - The periods of April 14, 2018 to May 14, 2018, and May 15, 2018 to June 14, 2018, were 831 kWh and 830 kWh, respectively.
 - The overlapping periods of June 15, 2018 to July 16, 2018, and June 15, 2018 to June 30, 2018, were each 1,319 kWh.
- Skewed calculation for average daily usage:
 - The average daily usage (kWh) for the period March 15 to April 11, 2018, when the new meter was installed, was 0.6 kWh per day (arrived at by dividing the 16 Total kWh shown in the 'Your Meter Details' table by the 27 days in the reporting period).
 - The average daily usage (kWh) for the period from April 11, 2018 (when the new meter installed) to July 16, 2018, was 72.8 daily kWh (arrived at by dividing the 6,990 kWh shown in the 'Your Meter Details' table by the 96 days in the reporting period).

These skewed calculations could cause the customer to question the accuracy of these meter readings.
- This invoice was for 123 days of usage and was not a rebill or reversed bill.

EXAMPLE 7: Multiple Invoice Errors

The invoice shown in Exhibit 10 contains a number of errors that could cause a customer to question the accuracy of the invoice.

Exhibit 10: Invoice Errors

Delivery Charges

Delivery Charges: Residential (07/06/2018 - 08/03/2018)

Delivery Service:

450 KWH

Up to 50 KWH @ \$11.00

533 KWH @ \$0.068334

Delivery Charges: Residential (07/06/2018 - 07/08/2018)

Delivery Service:

133 KWH

573 KWH

Up to 50 KWH @ \$11.00

523 KWH @ \$0.068334

Delivery Charges: Residential (08/04/2018 - 09/05/2018)

Delivery Service:

Total Current Delivery Charges

Your Meter Details

Read Cycle 04

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	09/05/2018	1,023*	07/08/2018	0	59	1,023
	07/08/2018	0	07/05/2018	69,995	3	133

For example:

- The customer account shown in Exhibit 10 had its meter exchanged on July 8, 2018, and the meter reading on the invoice was displayed as 0. CMP explained that the final meter reading is transmitted to, and retained only in, the SmartCare System. The HES does not capture the final meter reading and, therefore, we could not determine if the correct Total kWh was billed.
- There were no meter readings provided for the new meter. An estimated reading was calculated on September 5, 2018 for the meter read dates of July 8, 2018 through September 5, 2018.
- The average daily usage for the old meter was 44.3 daily kWh (arrived at by dividing the 133 Total kWh shown in the 'Your Meter Details' table by the three days in the reporting period). The average daily usage for the new meter installed was 17.3 daily kWh (arrived at by dividing the 1,023 Total kWh shown in the 'Your Meter Details' table by the 59 days in the reporting period). This is a significant fluctuation in daily kWh usage and the invoice does not explain the differences to the customer, who may not be able to understand the information as presented.
- Additional lines of kWh usage (as highlighted in Exhibit 10) in the Delivery Charges calculation were not included in the billed delivery charges.

EXAMPLE 8: Discrepant Meter Readings

As shown in Exhibit 11, the FCS meter reading of 25,994 did not agree to the invoice meter reading of 25,494, and the invoice was not identified as an estimated reading.

Exhibit 11: Evidence of Discrepant Meter Readings

Your Meter Details						
Read Cycle 07						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	11/07/2018	25,494	10/09/2018	25,155	29	339

Customer Information: meter reading per FCS reads was 25,994

Meter Readings from the FCS

ContractAccountNum	Meter	Complaint D	Register	Read Date	Reading	Read Source
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	9/10/2018 11:31	24,902.00	FCS
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	10/9/2018 9:34	25,155.00	FCS
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	11/6/2018 14:08	25,994.00	FCS
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	12/10/2018 10:50	25,948.00	FCS

Per further inquiry, it appears that a CMP Customer Service Representative manually changed the meter reading in the SmartCare System. When making this meter reading change, the Customer Service Representative also changed the coding in the SmartCare System from a “03” estimated reading to a “01” actual reading. By changing the meter reading, the Customer Service Representative should have changed the coding in the account to a manual adjustment; instead, the SmartCare System allowed the Customer Service Representative to change the coding to reflect as if it was an actual meter reading.

A customer would not know that the meter reading on November 7, 2018, was an estimated reading and that the meter reading would likely be trued-up at the next meter reading. This could cause fluctuations in the displayed kWh usage from month to month and result in unpredictable monthly balances due.

We also noted per review of the meter usage for this meter number, the meter reading for this same 29-day period decreased from 25,994 on meter read date November 6, 2018, to 25,948 on meter read date December 10, 2018. There was no explanation provided for this change.

EXAMPLE 9: Discrepant Meter Readings

As shown in Exhibit 12, the FCS meter reading of 1,154 did not agree to the invoice meter reading of 1,241, and the invoice was not identified as an estimated reading.

Exhibit 12: Evidence of Discrepant Meter Readings

Your Meter Details			Read Cycle 10			
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	12/13/2018	1,241	10/12/2018	894	62	347

Meter reading from the FCS:

Contract	AccountNum	Meter	Complaint D	Register	Read Date	Reading	Read Source
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	12/12/2018 8:09	1,154.00	FCS
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	1/11/2019 8:28	1,421.00	FCS

Per further inquiry, it appears that a CMP Customer Service Representative manually changed the meter reading in the SmartCare System. When making this meter reading change, the Customer Service Representative also changed the coding in the SmartCare System from a “03” estimated reading to a “01” actual reading. By changing the meter reading, the Customer Service Representative should have changed the coding in the account to a manual adjustment; instead, the SmartCare System allowed the Customer Service Representative to change the coding to reflect as if it was an actual meter reading.

A customer would not know that the meter reading on December 13, 2018, was an estimated reading and that the meter reading would likely be trued-up at the next meter reading. This could cause fluctuations in the displayed kWh usage from month to month and result in unpredictable monthly balances due.

EXAMPLE 10: Discrepant Meter Readings

As shown in Exhibit 13, the HES meter reading of 77,777 did not agree to the invoice meter reading of 77,435, and the invoice was not identified as an estimated reading.

Exhibit 13: Evidence of Discrepant Meter Readings

Your Meter Details

Read Cycle 08

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	02/11/2019	77,435	01/10/2019	75,931	32	1,504

Customer Information for [REDACTED]

Delivery rates are approved by the Commission. For bills that cover both electricity supply and CMP delivery, CMP forwards energy-supply payments to the customer. For a schedule of CMP delivery rates, visit www.cmpco.com or call us at 1.800.686.4044. TTY for the hearing impaired: 1.800.686.4044.

meter reading per AMI reads was 77,777 (after dropping the "1" leading digit from 177,777)

The following information was obtained from a snapshot of the SAP data in the SmartCare System:

MR date	RR	MA	MT	RS	MR rec.	AMS	TransfDate	TrnfrTime	Text for Transfer	Status	Source System
08/12/2019	01	X	01	7	5,813						Not Specified (0)
07/11/2019	01	X	05	7	5,507						Not Specified (0)
06/12/2019	01	X	01	7	5,231						Not Specified (0)
05/10/2019	01	X	03	7	4,032						Not Specified (0)
04/10/2019	01	X	01	7	1,982						Not Specified (0)
03/12/2019	01	X	03	7	0						Not Specified (0)
03/05/2019	21	X	01	7	0						Not Specified (0)
03/04/2019	22	X	01	7	78,659	AMS1		00:00:00	Meter Reading by Entry		Not Specified (0)
02/11/2019	01	X	01	7	77,435	AMS1	02/07/2019	12:12:58	Meter Reading by Entry		Not Specified (0)
01/10/2019	01	X	01	7	75,931	AMS1	01/11/2019	10:36:35	Receipt of MR Confirmed		Not Specified (0)
12/11/2018	01	X	01	7	73,022	AMS1	12/12/2018	10:28:50	Receipt of MR Confirmed		Not Specified (0)
11/08/2018	01	X	01	7	67,313	AMS1	11/06/2018	12:13:10	Send MR Request Confirmed		Not Specified (0)

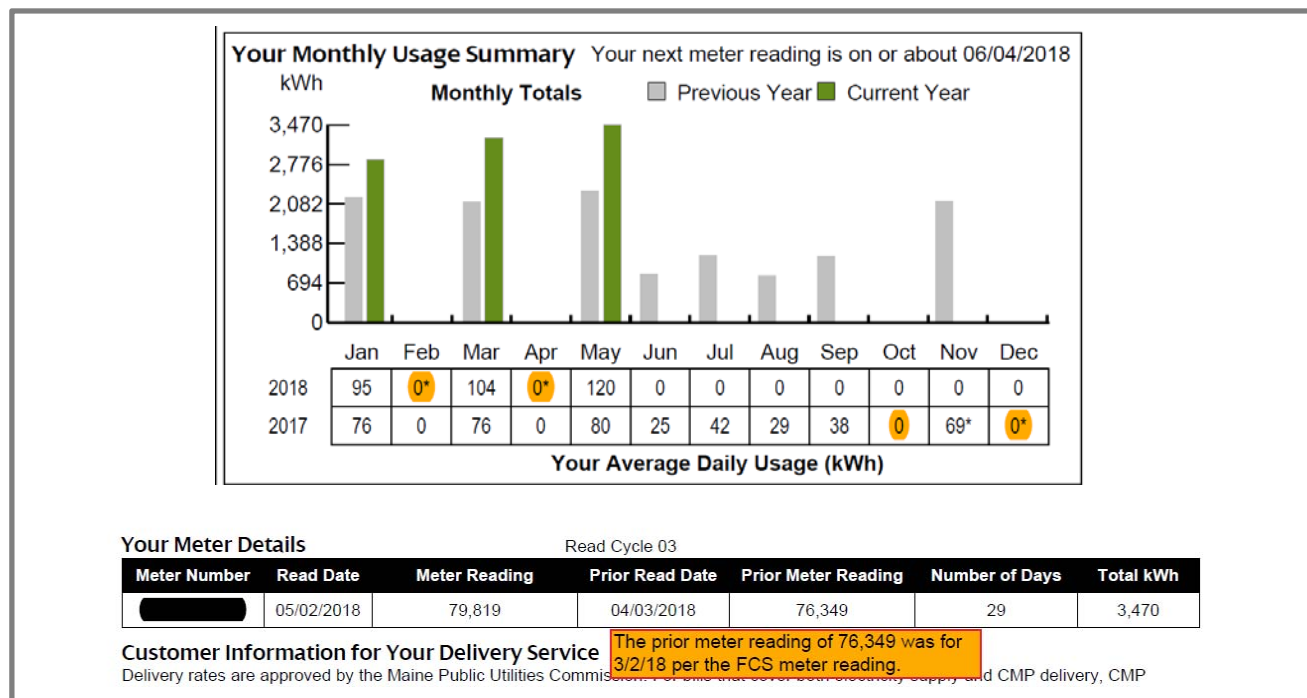
Per further inquiry, it appears that a CMP Customer Service Representative manually changed the meter reading in the SmartCare System (as highlighted in Exhibit 13). When making this meter reading change, the Customer Service Representative also changed the coding in the SmartCare System from a "03" estimated reading to a "01" actual reading. By changing the meter reading, the Customer Service Representative should have changed the coding in the account to a manual adjustment; instead, the SmartCare System allowed the Customer Service Representative to change the coding to reflect as if it was an actual meter reading. It is misleading for the meter reading to appear on the bill as an actual meter reading.

A customer would not know that the meter reading on February 11, 2019, was an estimated reading and that the meter reading would likely be trued-up at the next meter reading. This could cause fluctuations in the displayed kWh usage from month to month and result in unpredictable monthly balances due.

EXAMPLE 11: Invoice Discrepancies and Estimated Monthly Usage

The Invoice and Estimated Monthly Usage shown in Exhibit 14 has several issues, as described below, which could cause a customer to question the accuracy of the invoice.

Exhibit 14: Inaccurate Estimated Monthly Usage



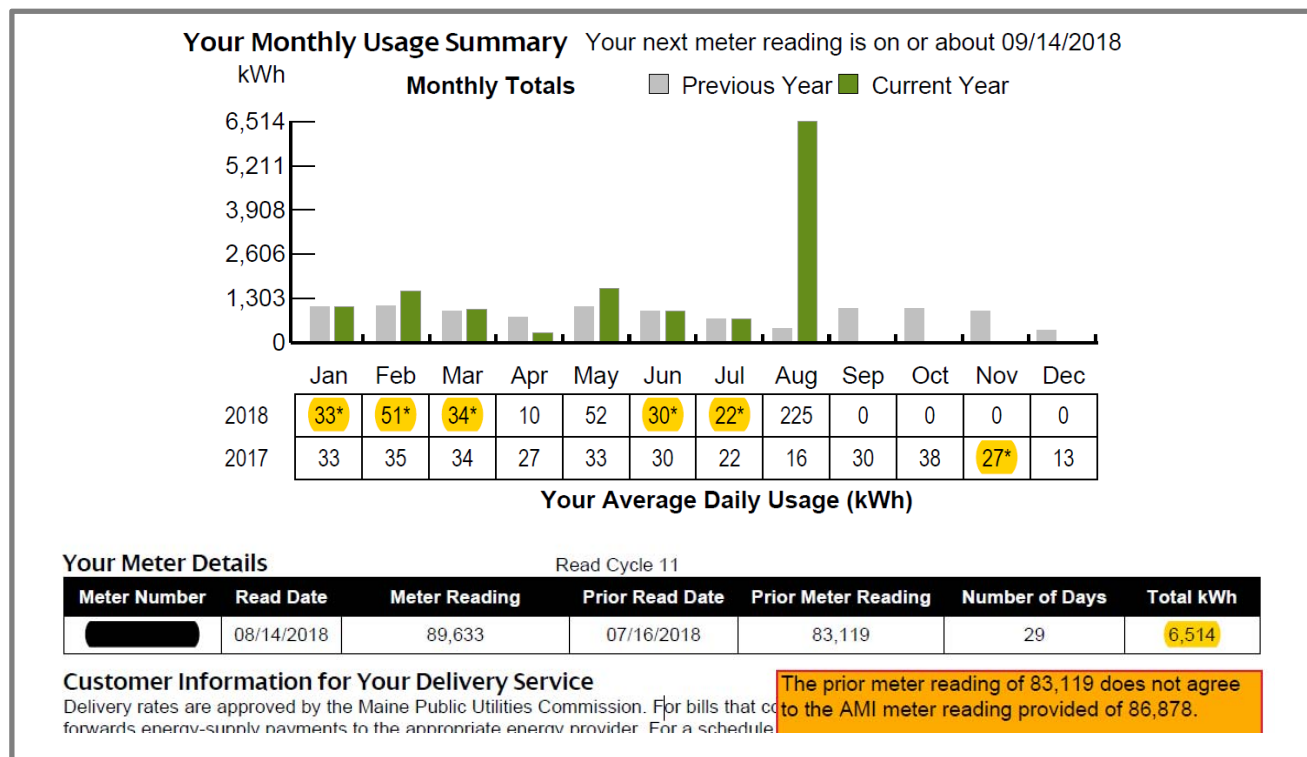
For example:

- In the “Your Monthly Usage Summary” graph, the usage for four out of six invoices between November 2017 and April 2018 were estimated. Out of the four invoices, three had 0 Average Daily Usage (kWh). This causes fluctuations in the displayed kWh used from month to month and unpredictable monthly balances due.
- In addition, the multiple months of estimated usage of 0 likely impacted the calculation of the amount of Maine sales tax charged. See EXAMPLE 3 for further analysis on the potential Maine sales tax implications for this customer.
- We noted that the meter read date on the invoice was May 2, 2018; however, the meter reading per the FCS was taken on May 1, 2018. Per further inquiry, CMP identified this variance in meter read dates as due to Billing Exception 58, Defect 6621. Through additional analysis, we determined the prior meter reading date of April 3, 2018, on the invoice was actually the meter reading on March 2, 2018, per the FCS meter reading provided.
- This invoice incorrectly displays that the meter reading is for 29 days, when it is actually for 60 days of usage (March 2, 2018 through May 1, 2018).

EXAMPLE 12: Invoice Discrepancies and Estimated Monthly Usage

The Invoice and Estimated Monthly Usage shown in Exhibit 15 has several issues, as described below, which could cause a customer to question the accuracy of the invoice.

Exhibit 15: Inaccurate Estimated Monthly Usage



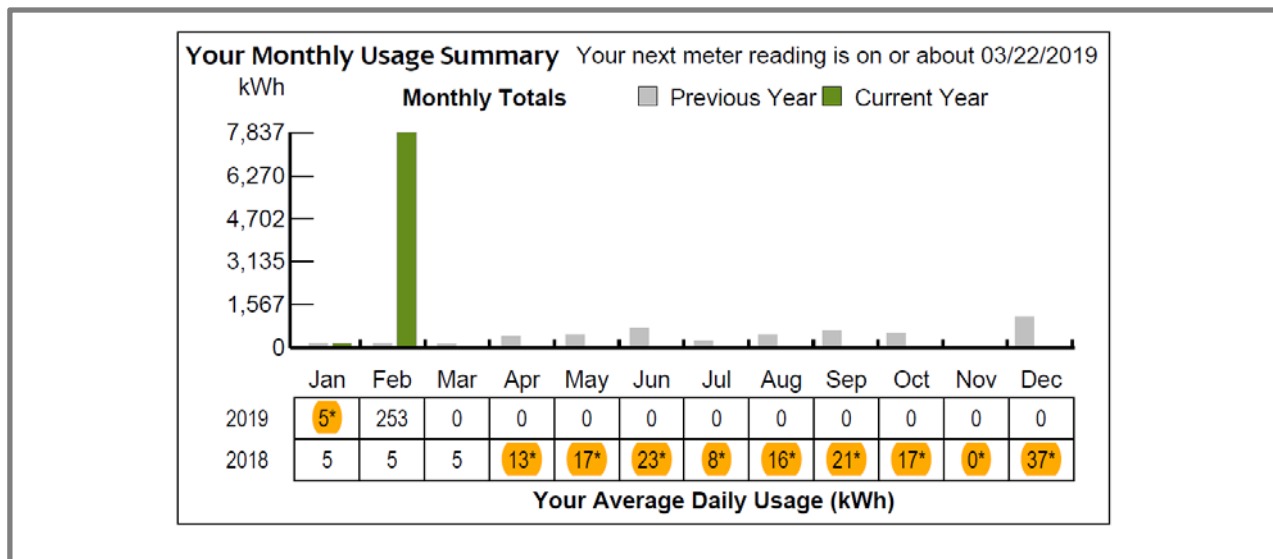
For example:

- In the “Your Monthly Usage Summary” graph, the usage for six out of ten invoices between November 2017 and August 2018 were estimated. This causes fluctuations in the displayed kWh used from month to month and unpredictable monthly balances due.
- We also noted the prior meter reading of 83,119 on July 16, 2018 per the invoice did not agree to the HES meter reading of 86,878 for this meter read date. We did not receive the invoice for July 16, 2018, since it was outside of the period requested and, therefore, we could not determine if the correct Total kWh was billed.

EXAMPLE 13: Invoice Discrepancies and Estimated Monthly Usage

On the invoice shown in Exhibit 16, the 'Your Monthly Usage Summary' graph shows that ten consecutive invoices were estimated between April 2018 and January 2019. This caused significant fluctuations in the displayed kWh used from month to month, as well as unpredictable monthly balances due. The multiple months of estimated usage could also impact the calculation of the amount of Maine sales tax charged. See EXAMPLE 3 for further analysis on the potential impact.

Exhibit 16: High Number of Estimated Daily Average Usage Records



In the invoice shown in Exhibit 17, below, the January 22, 2019 meter reading was estimated to be 4,384. We compared this to the December 24, 2018 meter reading provided by FCS, which showed the estimated usage to be 7,593, which is higher than the January estimate.

Exhibit 17: Discrepancy between the Invoice and FCS Meter Readings

Your Meter Details Read Cycle 16

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	01/22/2019	4,384*	12/21/2018	4,219	32	165

Meter reading from the FCS:

ContractAccountNum	Meter	Complaint D	Register	Read Date	Reading	Read Source
[REDACTED]				12/24/2018 10:02	7,593.00	FCS
[REDACTED]				1/22/2019 13:35	NO READ	FCS
[REDACTED]				2/25/2019 9:59	12,221.00	FCS

In addition, based on our review of FCS meter readings for December 24, 2018; January 22, 2019; and February 25, 2019 (as shown above in Exhibit 17), the Total kWh usage information shown in the invoices below (Exhibit 18) for the read dates of January 22, 2019, and February 22, 2019 are incorrect, as described below:

- The January 22, 2019 estimated meter reading of 4,384, with a Total kWh of 165, is underestimated and resulted in the customer being billed only \$33.16 for this invoice.
- The February 22, 2019 actual meter reading of 12,221, with a Total kWh of 7,837, which is significantly higher than the estimated readings from January 22, 2019. While the Total kWh usage shown on the February 22, 2019 invoice was correct, the actual usage was spread out over a larger period of time than the 31 days shown in the 'Your Meter Details' table. This resulted in a significant increase in billing, jumping to \$1,310.40 for the February 22, 2019 invoice. This type of dramatic increase may lead customers to be concerned about the accuracy of their invoices.

Exhibit 18: High Number of Estimated Daily Average Usage Records

Your Meter Details						
Read Cycle 16						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	01/22/2019	4,384*	12/21/2018	4,219	32	165

Your Meter Details						
Read Cycle 16						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	02/22/2019	12,221	01/22/2019	4,384	31	7,837

EXAMPLE 14: Invoice Did Not Identify the Meter Reading as an Estimate

As shown in Exhibit 19, the invoice meter reading was estimated; however, the invoice did not identify the meter reading as an estimated reading. A customer would not know that the meter reading on February 25, 2019, was an estimated reading and that the meter reading would likely be trued-up at the next meter reading. This could cause fluctuations in the displayed kWh used from month to month.

Exhibit 19: The Invoice Did Not Identify the Meter Reading as an Estimate

Your Meter Details			Read Cycle 17			
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	02/25/2019	45,675	01/23/2019	43,913	33	1,762

Meter reading from the FCS:

Meter	Read Date	Reading
[REDACTED]	11/26/2018	39463
	1/22/2019	43913
	3/25/2019	47360

EXAMPLE 15: Discrepancy Between Current and Prior Meter Readings

Per our review of two invoices (shown in Exhibit 20) for the same customer account number, we noted that the **ending meter reading** on the June 2018 invoice did not match the **prior meter reading** on the July 2018 invoice. The HES meter reading did not agree to the meter reading on the first invoice; however, the HES prior meter reading did agree to the prior meter reading on the second invoice.

Exhibit 20: Discrepancy Between Current and Prior Meter Readings

Your Meter Details						
Read Cycle 01						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	06/01/2018	38,297	05/01/2018	36,930	31	1,343
Customer Information for Your Delivery Service Delivery rates are approved by the Maine Public Utilities Commission. For bills that cover both electricity and natural gas, we forward energy-supply payments to the appropriate energy provider. For a schedule of CMP delivery rates, call us at 1.800.565.3181. TTY for the deaf: 1.800.445.5631.						
<div> 38,297 current meter reading 36,930 less prior meter reading ----- 1,367 Calculated Total kWh used </div>						
Your Meter Details						
Read Cycle 01						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	07/02/2018	40,348	06/01/2018	38,273	31	2,075

We also noted that the Total kWh per the 'Your Meter Details' did not agree to the difference between the current meter reading and the prior meter reading on the first invoice.

These errors call into question the accuracy of the invoice.

EXAMPLE 16: Discrepancy Between Current and Prior Meter Readings

Per our review of two invoices (shown in Exhibit 21) for the same customer account number, we noted that the **ending meter reading** on the first invoice did not match the **prior meter reading** on the second invoice. Although it appears the customer was billed the correct usage of 12 kWh (current meter reading of 63,126 less the meter reading from the previous invoice of 63,114) on May 24, 2019, it is understandable for a customer to question the accuracy of the current invoice.

Exhibit 21: Discrepancy Between Current and Prior Meter Readings

Your Meter Details						
Read Cycle 09						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	05/13/2019	63,114	04/11/2019	60,962	32	2,152

Your Meter Details						
Read Cycle 09						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	05/24/2019	63,126	05/13/2019	0	11	12

EXAMPLE 17: Multiple Invoice Errors

The invoice shown in Exhibit 23 demonstrated a number of errors that could cause a customer to question the accuracy of the invoice.

Exhibit 23: Example of Multiple Invoice Errors

Delivery Charges

Delivery Charges: Residential (02/27/2018 - 04/25/2018)

Delivery Service:

4,957 KWH

Delivery Charges: Residential (02/27/2018 - 03/26/2018)

Delivery Service:

2,362 KWH

Up to 50 KWH @ \$10.68

3,964 KWH @ \$0.070186

Up to 50 KWH @ \$10.68

3,255 KWH @ \$0.070186

Delivery Charges: Residential (04/26/2018 - 05/23/2018)

Delivery Service:

1,720 KWH

Up to 50 KWH @ \$10.68

1,670 KWH @ \$0.070186

Delivery Charges: Residential (05/24/2018 - 06/25/2018)

Delivery Service:

2,496 KWH

Up to 50 KWH @ \$10.68

2,446 KWH @ \$0.070186

Maine Sales Tax

Total Current Delivery Charges

Other Charges

Late Payment Charge

Total Other Charges

Central Maine Power Account Balance

meter reading per AMI reads was 76,693

ad Cycle 18

73,636 current reading

73,636 prior reading

0 Calculated Total kWh used

Your Meter Details

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	06/25/2018	73,636	02/26/2018	73,636	119	4,874
	06/25/2018	51,929	02/26/2018	49,732	119	6,661

meter reading per AMI reads was 56,393

51,929 current reading

49,732 prior reading

2,197 Calculated Total kWh used

For example:

- This invoice had two meter numbers listed, with separate readings for each meter number. The meter readings on the invoice did not agree to the readings from the HES.
- The Total kWh per the 'Your Meter Details' did not agree to the difference between the current meter reading and the prior meter reading for either meter.
- There were additional lines of kWh displayed in the Delivery Charges section of the invoice that were not included in the billed usage calculation.
- This invoice was for 119 days of usage and was not a rebill or reversed bill.

EXAMPLE 18: Multiple Invoice Errors

The invoice shown in Exhibit 24 demonstrated a number of errors that could cause a customer to question the accuracy of the invoice or view the invoice as inaccurate and misleading.

Exhibit 24: Example of Multiple Invoice Errors

Bill Date 07/11/2018

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery
Payments received - Thank you

Balance Forward

Delivery Charges
Delivery Charges: Residential (03/09/2018 - 04/06/2018)
Delivery Service: Up to 50 KWH
694 KWH

Delivery Charges: Residential (04/07/2018 - 06/07/2018)
Delivery Service: Up to 50 KWH
542 KWH

Delivery Charges: Residential (04/07/2018 - 05/07/2018)
Delivery Service: Up to 50 KWH
526 KWH

Delivery Charges: Residential (06/08/2018 - 07/09/2018)
Delivery Service: Up to 14 KWH
231 KWH

Delivery Charges: Residential (06/08/2018 - 06/30/2018)
Delivery Service: Up to 36 KWH
587 KWH

Maine Sales Tax

Total Current Delivery Charges

Other Charges
Late Payment Charge

Total Other Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 06

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	07/09/2018	63,841	03/08/2018	61,929	123	2,780

Meter reading per AMI reads was 64,709

63,841 current reading
61,929 less prior reading
1,912 Calculated Total kWh used

For example:

- Most critical, the HES meter reading did not agree to the invoice meter reading. CMP explained that the meter reading displayed as if it was the July 9, 2018 meter reading, when it was actually the June 8, 2019 meter reading. CMP further explained that the July 9, 2018 meter reading was 64,709 and the total kWh of 2,780 was properly billed to the customer and this was only an issue with the 'Your Meter Details' display box. However, the customer would not know this without adequate explanation from CMP.
- The Total kWh per the 'Your Meter Details' did not agree to the difference between the current meter reading and the prior meter reading.

- The billing periods shown on the invoice for the delivery charges calculation are not sequential and/or they overlap, which may cause the customer to question whether they have been billed twice for the same or overlapping time periods. The billing periods are detailed as follows:
 - The first billing period is for March 9, 2018, through April 6, 2018.
 - The second billing period is for April 7, 2018, through June 7, 2018
 - A third billing period begins on April 7, 2018 (again) and ends on May 7, 2018.
 - A fourth billing period begins on June 8, 2018, and continues through July 9, 2018.
 - The final billing period goes from June 8, 2018 (again) through June 30, 2018.
 - This customer is unlikely to know whether they have been billed for this time period twice.
- Also, this invoice was for 123 days of usage and was not a rebill or reversed bill.

EXAMPLE 19: Multiple Invoice Errors

The invoice shown in Exhibit 25 demonstrated a number of errors that could cause a customer to question the accuracy of the invoice or view the invoice as inaccurate and misleading.

Exhibit 25: Example of Multiple Invoice Errors

Bill Date 07/11/2018 Page 2 of 4

Your Central Maine Power Delivery Service Account Detail
Prior Balance for Central Maine Power Delivery
 Payments received - Thank you

Balance Forward
Delivery Charges
 Delivery Charges: Residential (02/06/2018 - 03/06/2018)
 Delivery Service: Up to 50 KWH
 3,302 KWH

Delivery Charges: Residential (03/07/2018 - 04/04/2018)
 Delivery Service: Up to 50 KWH
 2,441 KWH

Delivery Charges: Residential (04/05/2018 - 05/03/2018)
 Delivery Service: Up to 50 KWH
 1,978 KWH

Delivery Charges: Residential (05/04/2018 - 06/05/2018)
 Delivery Service: Up to 50 KWH
 1,300 KWH

Delivery Charges: Residential (06/06/2018 - 07/05/2018)
 Delivery Service: Up to 8 KWH
 158 KWH

Delivery Charges: Residential (06/06/2018 - 06/30/2018)
 Delivery Service: Up to 42 KWH
 786 KWH

Maine Sales Tax
Total Current Delivery Charges

Other Charges
 Late Payment Charge
Total Other Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 04

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	07/05/2018	46,376	02/05/2018	40,533	150	11,209

Meter reading per AMI reading was 50,748

46,376 current meter reading
 40,533 less prior meter reading

 5,843 Calculated Total kWh on invoice

Total = 10,215 KWH
 Does not agree to Total kWh below

For example:

- The HES meter reading did not agree to the invoice meter reading and the invoice was not identified as an estimated reading.
- The Total kWh per the 'Your Meter Details' box on the invoice did not agree to the difference between the current meter reading and the prior meter reading.

- The billing periods in the Delivery Charges calculation overlap, which may cause the customer to question whether they have been billed twice for this time period. The overlapping billing periods are detailed as follows:
 - The first billing period is June 6, 2018, through July 5, 2018.
 - The next billing period shown is June 6, 2018, through June 30, 2018.
- The kWh billed in the delivery charges did not agree to the Total kWh per the 'Your Meter Details' box.
- This invoice was for 150 days of usage and was not a rebill or reversed bill. We also noted that, based on the HES data provided, the HES appears to be capturing AMI daily reads.

EXAMPLE 20: Rebill or Reversed Bill with Billing Errors

The invoice shown in Exhibit 26 was a rebill or reversed bill for the previous four billing cycles plus the current billing cycle.

Exhibit 26: Example of a Rebill or Reversed Bill with Billing Errors

Your Central Maine Power Delivery Service Account Detail
Prior Balance for Central Maine Power Delivery
 Payments received
Balance Forward
Adjustments
 Canceled Delivery Charges (03/16/2018)
 Canceled Delivery Charges (04/17/2018)
 Canceled Delivery Charges (05/15/2018)
 Canceled Delivery Charges (06/15/2018)
 Canceled Late Payment Charges
Total Adjustments
Delivery Charges
 Delivery Charges: Residential (02/16/2018 - 03/16/2018)
 Delivery Service: Up to 50 KWH
 1,505 KWH
 Delivery Charges: Residential (03/17/2018 - 04/17/2018)
 Delivery Service: Up to 50 KWH
 Delivery Charges: Residential (04/18/2018 - 05/15/2018)
 Delivery Service: Up to 50 KWH
 Delivery Charges: Residential (05/16/2018 - 06/15/2018)
 Delivery Service: Up to 50 KWH
 2 KWH
 Delivery Charges: Residential (06/16/2018 - 06/30/2018)
 Delivery Service: Up to 23 KWH
 31 KWH
 Delivery Charges: Residential (07/01/2018 - 07/17/2018)
 Delivery Service: Up to 27 KWH
 8 KWH
 Maine Sales Tax
Total Current Delivery Charges
Other Charges
 Late Payment Charge
Total Other Charges
Central Maine Power Account Balance

Your Meter Details

Read Cycle 12

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	07/17/2018	74,541	02/15/2018	72,797	152	1,833

Customer Information for Your Delivery Service
 Delivery rates are approved by the Maine Public Utilities Commission. For bills that cover both electric and gas, we forward energy-supply payments to the appropriate energy provider. For a schedule of CMP delivery rates, call us at 1.800.686.4044. TTY for the deaf: 1.800.445.5631.

74,541 current reading
 72,797 less prior reading
 1,744 Calculated Total kWh used

Total = 1,796 KWH
 Does not agree to Total kWh below

Issues noted include:

- Certain billing periods that were being rebilled included only the minimum usage of 50 kWh. We would expect that the new billing system would have the capabilities to estimate usage for a billing period if actual usage was not available.
- The Total kWh per the 'Your Meter Details' box on the invoice did not agree to the difference between the current meter reading and the prior meter reading.
- The kWh billed in the delivery charges did not agree to the Total kWh per the 'Your Meter Details.'

EXAMPLE 21: Invoices for Days Billed Greater than 90 Days

Exhibits 27, 28, and 29 show invoices where the number of days billed on the invoice was greater than 90 days. These invoices were from January 22, 2019, covering a period 183 days; January 15, 2019, covering a period of 154 days; and May 19, 2019, covering a period of 120 days. These invoices were not rebills or reversed bills.

Exhibit 27: Invoice for Days Billed Greater than 90 Days

Your Central Maine Power Delivery Service Account Detail						
Prior Balance for Central Maine Power Delivery						
Payments received - Thank you						
Balance Forward						
Delivery Charges						
Delivery Charges: Residential (07/24/2018 - 08/21/2018)						
Delivery Service:		2 KWH				
		Up to 50 KWH	@\$11.00			
Delivery Charges: Residential (08/22/2018 - 09/21/2018)						
Delivery Service:		1 KWH				
		Up to 50 KWH	@\$11.00			
Delivery Charges: Residential (09/22/2018 - 10/22/2018)						
Delivery Service:		5 KWH				
		Up to 50 KWH	@\$11.00			
Delivery Charges: Residential (10/23/2018 - 11/21/2018)						
Delivery Service:		32 KWH				
		Up to 50 KWH	@\$11.00			
Delivery Charges: Residential (11/22/2018 - 12/21/2018)						
Delivery Service:		84 KWH				
		Up to 50 KWH	@\$11.00			
		34 KWH	@\$0.068334			
Delivery Charges: Residential (12/22/2018 - 01/22/2019)						
Delivery Service:		161 KWH				
		Up to 50 KWH	@\$11.00			
		111 KWH	@\$0.068334			
Total Current Delivery Charges						
Other Charges						
Reversed Payment						
Customer Comp Settlement Cr						
Customer Service Guarantee Credit						
Total Other Charges						
Central Maine Power Account Balance						
Your Meter Details						
Read Cycle 16						
Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	01/22/2019	6,148	07/23/2018	5,863	183	285

Exhibit 28: Invoice for Days Billed Greater than 90 Days

Your Central Maine Power Delivery Service Account Detail
Prior Balance for Central Maine Power Delivery
 Payments received - Thank you

Balance Forward
Adjustments
 Apply credit available
 Transfer Posting
Total Adjustments

Delivery Charges
 Delivery Charges: Residential (08/15/2018 - 09/14/2018)
 Delivery Service: 782 KWH
 Up to 50 KWH @ \$11.00
 732 KWH @ \$0.068334

Delivery Charges: Residential (09/15/2018 - 10/15/2018)
 Delivery Service: 1,149 KWH
 Up to 50 KWH @ \$11.00
 1,099 KWH @ \$0.068334

Delivery Charges: Residential (10/16/2018 - 11/14/2018)
 Delivery Service: 1,235 KWH
 Up to 50 KWH @ \$11.00
 1,185 KWH @ \$0.068334

Delivery Charges: Residential (11/15/2018 - 12/14/2018)
 Delivery Service: 1,981 KWH
 Up to 50 KWH @ \$11.00
 1,931 KWH @ \$0.068334

Delivery Charges: Residential (12/15/2018 - 01/15/2019)
 Delivery Service: 1,669 KWH
 Up to 50 KWH @ \$11.00
 1,619 KWH @ \$0.068334

Maine Sales Tax
Total Current Delivery Charges

Other Charges
 Customer Service Guarantee Credit
Total Other Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 11

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
██████████	01/15/2019	47,156	08/14/2018	40,340	154	6,816

Exhibit 29: Invoice for Days Billed Greater than 90 Days

Your Central Maine Power Delivery Service Account Detail
Prior Balance for Central Maine Power Delivery
 Payments received - Thank you

Balance Forward
Delivery Charges
 Delivery Charges: Residential (01/18/2019 - 02/19/2019)
 Delivery Service: 505 KWH
 Up to 50 KWH @ \$11.00
 455 KWH @ \$0.068334

Delivery Charges: Residential (02/20/2019 - 03/19/2019)
 Delivery Service: 510 KWH
 Up to 50 KWH @ \$11.00
 460 KWH @ \$0.068334

Delivery Charges: Residential (03/20/2019 - 04/18/2019)
 Delivery Service: 512 KWH
 Up to 50 KWH @ \$11.00
 462 KWH @ \$0.068334

Delivery Charges: Residential (04/19/2019 - 05/17/2019)
 Delivery Service: 496 KWH
 Up to 50 KWH @ \$11.00
 446 KWH @ \$0.068334

Total Current Delivery Charges

Other Charges
 Customer Comp Settlement Cr
 Elec Mech Meter Opt-Out Fee
Total Other Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 13

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
██████████	05/17/2019	12,098	01/17/2019	10,075	120	2,023

EXAMPLE 22: Duplicate Billing with Discrepant Information

The two invoices shown in Exhibit 30 have the same bill dates (September 17, 2018), the same invoice number, and the same meter read dates of June 15, 2018, through July 18, 2018. However, they have two different Total kWh in the 'Your Meter Details.'

Exhibit 30: Separate Invoices with the Same Bill Date, Invoice Number, and Read Dates, but with Discrepant Total kWh

Invoice 1:

Bill Date 09/17/2018 Invoice Number [REDACTED] 7483

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery

Payments received

Balance Forward

Delivery Charges

Delivery Charges: Residential (06/16/2018 - 06/30/2018)

Delivery Service: Up to 23 KWH
2,152 KWH

Delivery Charges: Residential (07/01/2018 - 07/18/2018)

Delivery Service: Up to 27 KWH
2,586 KWH

Maine Sales Tax

Total Current Delivery Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 12

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	07/18/2018	32,702	06/15/2018	31,165	33	3,074
[REDACTED]	07/18/2018	18,814	06/15/2018	15,563	33	6,502

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[REDACTED]

Invoice 2:

Bill Date 09/17/2018 Invoice Number [REDACTED] 7483

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery

Payments received

Balance Forward

Delivery Charges

Delivery Charges: Residential (06/16/2018 - 06/30/2018)

Delivery Service: Up to 23 KWH
2,152 KWH

Delivery Charges: Residential (07/01/2018 - 07/18/2018)

Delivery Service: Up to 27 KWH
2,586 KWH

Maine Sales Tax

Total Current Delivery Charges

Central Maine Power Account Balance

Your Meter Details Read Cycle 12

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	07/18/2018	32,702	06/15/2018	31,165	33	1,537
[REDACTED]	07/18/2018	18,814	06/15/2018	15,563	33	3,251

Page 2 of 3

[REDACTED]

We do not understand how two invoices with the same bill date, invoice number, and read dates, but with different Total kWh displayed, could be printed and sent to a customer.

We were also provided a third invoice (shown in Exhibit 31) for meter read dates of June 15, 2018 through July 18, 2018. This invoice also displayed the bill date of September 17, 2018.

It is our understanding that the customer received all three of these invoices with the same billing date and different Total kWh per 'Your Meter Details' box on two of the three invoices, which would be extremely confusing for the customer, and calls into question the accuracy of all of the invoices.

Exhibit 31: Third Invoice Sent to the Same Customer with the Same Bill Date, Invoice Number, and Read Dates

Invoice 3:

Bill Date 09/17/2018

Invoice Number [REDACTED] 3575

[REDACTED]

Page 2 of 3

Your Central Maine Power Delivery Service Account Detail
Prior Balance for Central Maine Power Delivery
Payments received
Balance Forward
Delivery Charges
Delivery Charges: Residential (06/16/2018 - 06/30/2018)
Delivery Service:

Up to 23 KWH
2,152 KWH

Delivery Charges: Residential (07/01/2018 - 07/18/2018)
Delivery Service:

Up to 27 KWH
2,586 KWH

Maine Sales Tax
Total Current Delivery Charges
Central Maine Power Account Balance

Your Meter Details
Read Cycle 12

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
[REDACTED]	07/18/2018	32,702	06/15/2018	31,165	33	3,074
[REDACTED]	07/18/2018	18,814	06/15/2018	15,563	33	6,502

EXAMPLE 23: Billing Issue with Overlapping Meter Read Dates

The two invoices shown in Exhibit 32 were sent to the same customer, but with separate bill dates and overlapping meter read dates. The first invoice covers the meter read dates of February 7, 2019 through March 8, 2019; the second invoice covers the meter read dates of January 8, 2019 through March 8, 2019. The second invoice appears to be a rebill since it cancels the two previous billing periods (ending on February 7, 2019 and March 8, 2019) and rebills those periods with different kWh usage. The issue we noted between the two invoices is that the meter reading on March 8, 2019 was different on each of the two invoices. The meter reading on March 8, 2019 was 37,275 in the HES. From this bill presentation, the customer would not be able to understand what usage is being billed.

Exhibit 32: Separate Invoices with the Different Bill Dates and Overlapping Meter Read Dates

Invoice 1:

Bill Date 03/11/2019

Page 2 of 3

Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery

Payments received - Thank you

Balance Forward

Delivery Charges

Delivery Charges: Residential (02/08/2019 - 03/08/2019)

Delivery Service:

3,007 KWH

Up to 50 KWH @ \$11.00

2,957 KWH @ \$0.068334

Maine Sales Tax

Total Current Delivery Charges

Central Maine Power Account Balance

Your Meter Details

Read Cycle 06

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
	03/08/2019	37,348	02/07/2019	34,341	29	3,007

Invoice 2:

Bill Date 03/21/2019

Invoice Number

Account Number

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Your Central Maine Power Delivery Service Account Detail

Prior Balance for Central Maine Power Delivery

Payments received

Balance Forward

Adjustments

Canceled Delivery Charges (02/07/2019)

Canceled Delivery Charges (03/08/2019)

Reduce credit available

Total Adjustments

Delivery Charges

Delivery Charges: Residential (01/09/2019 - 02/07/2019)

Delivery Service:

1,940 KWH

Up to 50 KWH @ \$11.00

1,890 KWH @ \$0.068334

Delivery Charges: Residential (02/08/2019 - 03/08/2019)

Delivery Service:

1,981 KWH

Up to 50 KWH @ \$11.00

1,931 KWH @ \$0.068334

Maine Sales Tax

Total Current Delivery Charges

Other Charges

Customer Service Guarantee Credit

Total Other Charges

Central Maine Power Account Balance

Your Meter Details

Read Cycle 06

Meter Number	Read Date	Meter Reading	Prior Read Date	Prior Meter Reading	Number of Days	Total kWh
L112326891	03/08/2019	37,275	01/08/2019	33,354	59	3,921

EXAMPLE 24: Daily Meter Readings

During our analysis of daily meter readings, we noted some meters did not have AMI meter readings for several consecutive days.

For example, in Exhibit 33, the meter readings provided for the period of October 9, 2018 through October 29, 2018, had gaps for the dates October 15, 2018 through October 24, 2018 and is missing October 28, 2018. This equates to 11 daily meter readings missing out of 21 daily meter readings shown for this meter.

Exhibit 33: Missing Meter Read Dates

Read Date	Reading	Read Sour
10/9/2018 0:00	1745.9208	AMI
10/10/2018 0:00	1745.9208	AMI
10/11/2018 0:00	1745.9208	AMI
10/12/2018 0:00	1745.9208	AMI
10/13/2018 0:00	1745.9208	AMI
10/14/2018 0:00	1745.9208	AMI
10/25/2018 0:00	1755.2436	AMI
10/26/2018 0:00	1764.2388	AMI
10/27/2018 0:00	1772.2932	AMI
10/29/2018 0:00	1779.8556	AMI

In Exhibit 34, the meter readings provided for the period of June 30, 2018, through July 27, 2018, had gaps for the dates July 5, 2018 through July 13, 2018; July 15, 2018 through July 19, 2018; and July 24, 2018 through July 26, 2018. This equates to 17 daily meter readings missing out of 28 daily meter readings shown for this meter.

Exhibit 34: Additional Missing Meter Read Dates

Read Date	Reading	Read Sour
6/30/2018 0:00	66191.96287	AMI
7/1/2018 0:00	66245.6877	AMI
7/2/2018 0:00	66321.29541	AMI
7/3/2018 0:00	66400.73889	AMI
7/4/2018 0:00	66477.81251	AMI
7/14/2018 0:00	66958.69473	AMI
7/20/2018 0:00	67156.14625	AMI
7/21/2018 0:00	67181.03656	AMI
7/22/2018 0:00	67207.5507	AMI
7/23/2018 0:00	67234.77456	AMI
7/27/2018 0:00	67429.91479	AMI

4 Conclusion

Based upon the analysis of the information provided to us, we have observed that the SmartCare System has billing issues in terms of the accuracy of the information on customer invoices. Our findings reflect instances in which customers have received invoices containing errors related to the current or prior meter reading, meter read dates, calculated total kWh, delivery charges presentation, and number of days usage occurred. Some of these instances involve long periods of unbilled usage, resulting in invoices that present confusing and misleading information regarding usage without explanation. Numerous customer invoices required extensive review and examination, including review of backup information from the system, as well as discussions with CMP personnel, to gain an understanding of the problem. It is unlikely that a typical customer would understand these invoices as presented and would assume the invoices are inaccurate and/or that they are being overbilled for usage that did not occur. We also identified instances in which CMP personnel had manually changed the coding in the SmartCare System to indicate that a meter reading had occurred when it had not. The apparent deficiency in internal control which permits this type of coding change appears to contribute to the issues that have raised concerns from customers.

In addition, because of a SmartCare System defect, customers may have been overcharged Maine sales tax. If a customer's usage is greater than 750 kWh and the usage is billed in a different billing period than when the usage occurred, the customer is billed the incorrect amount of Maine sales tax. This happens because the customer did not receive the benefit of the 750 kWh per month residential sales tax exemption due to the delayed billing. The SmartCare System automatically calculates Maine sales tax on usage over 750 kWh and, since the SmartCare System considers the entire true-up usage to have occurred a single billing period, a customer is charged more Maine sales tax on the incorrect monthly usage. We have observed this issue for a customer in the first and second billing period for a new meter; however, it is possible that this defect impacts customers who experience delayed billing or multiple months of estimated usage combined in a single invoice.

Based on these findings, we believe that the SmartCare System, almost two years post go-live, has significant problems with producing and presenting invoices for customers. Given the parameters of our analysis, we cannot conclusively determine the extent or pervasiveness of these problems; however we believe the nature and extent of the issues we identified call into question the overall integrity of the system and its ability to provide accurate, timely and reliable invoices to CMP customers. We believe the number of customers continuing to register complaints regarding the accuracy of their invoices is a reflection of the continuing problems and that such complaints likely will not subside until deliberate and effective measures are taken, as set forth in Section 5, to identify the root cause of the problems and create a system for resolving the problems identified.

5 Recommendations

Defects Requiring Urgent and Immediate Remediation:

1. Defect 6621 should be addressed immediately. This defect causes some meter read dates to be inaccurately reflected on customer invoices, which impacts the number of days in a billing period.
2. Defect 4711 should be addressed immediately. This defect causes the SmartCare System to estimate a 0 meter reading for the billing period of a new meter exchange, which then requires the second invoice after the exchange to “catch up” the usage from the exchange date to the meter read date on the second invoice. This defect causes unpredictable billing and results in customers being overcharged for Maine sales tax if the second invoice reflects more than 750 kWh of usage.
3. The defect in the SmartCare System that does not display the final meter reading when a meter is removed from service should be addressed immediately. The customer is unable to determine if the meter usage billed is accurate.
4. CMP should program the SmartCare System to include an estimated reading asterisk (*) on the customer invoice to identify when a prior meter reading is an estimated reading. Currently, a customer does not know the prior meter reading was an estimated reading unless they compare their current invoice to their previous invoice. The previous billing system included this notation on the customer invoices, and we would expect the SmartCare System would have this programming option.
5. The SmartCare System should be programmed to automatically identify when a meter reading is manually changed by a customer service representative. The SmartCare System should never allow a manual adjustment to be coded as an actual meter reading.
6. The findings in this testimony support the recommendation made by Laurel Arnold in her testimony of the date of this report that a retesting and validation effort of the SmartCare System should be undertaken by CMP under third-party supervision.

General System Remediation Action:

7. Impact analysis. When a defect is identified that affects a customer invoice, CMP should analyze all customer accounts that may have been impacted to determine the number of customers affected.
8. Customer notification. When a defect is identified that could affect a customer invoice, CMP should be required to communicate the defect directly to all customers through separate communication outside of the invoice. CMP must also notify the Commission of such defects at the same time as notification to the customer. This communication should describe how the defect might impact a customer invoice.

All costs associated with these recommended remediation efforts should be disallowed and are not to be borne by ratepayers.